



CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
NABL - Accredited Laboratory as per ISO / IEC-17025 :2005



Job No.: CTCE/BBMP/LLR/W.No.04/CSR-05/045c/CUBE/2016-17

26.06.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

- * Customer : Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
- * Agency : Mr. L Lokanatha Reddy,
No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval
Byrasandra, Bangalore
- * Name of the work : Improvements of Roads and Drains in B sector in Ward No. 04, BBMP,
Bangalore.
- * Reference : BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
- * Sample ID : Cement Concrete
- Size of cubes : 150mmx150mmx150mm
- Cross Sectional Area : 22500 mm²
- Technical Reference : IS: 516-1959 (Reaffirmed 2008)
- * Grade of Concrete : M₃₀
- Compressive Strength as on : 28th day
- Sample Received on : 26.06.2016



Sl.No	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm ²)
1	29.05.2016	26.06.2016	8.263	493.5	21.93
2	29.05.2016	26.06.2016	8.347	510.6	22.69
3	29.05.2016	26.06.2016	8.412	522.8	23.24

* Information is furnished by the Customer/Representative

Note:

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VIDYARANI P.K.
Technical Manager





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Job No.: CTCE/BBMP/LLR/W.No.04/WMM/AIV/2016-17

01.06.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval
Name of the Work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	01.06.2016



Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	384	386	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	88	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	299	
4	Aggregate Impact value = percent fines	22.92	22.54	
	$100 * (W_2 / W_1) %$			22.73

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No: CTCE/BBMP/LLR/W No.04/WMM/S-T/2016-17

01.06.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
Name of Work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore
Reference	BBMP/AEE/YNSD/71/2016-17 Dated: 21.05.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	01.06.2016

Result : Flakiness Index = 12.56%

Elongation Index = 13.87%

Result : Combined Flakiness & Elongation index 26.43%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No: CTCE/BBMP/LLR/W.No.04/CSR-05/045c/QB(SDBC)/2016-17

09.06.2016

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
*AGENCY	:	Mr. L Lokanatha Reddy, No. 5, 1 st H Main Road, 7 th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
*NAME OF THE WORK	:	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
REFERENCE	:	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	07.06.2016
DATE OF TESTING	:	09.06.2016

The results of the tests conducted on the bitumen sample.

Sl No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2006
1	Penetration at 25 °C, 1/10 mm	IS :1203 -1978 (RA-2009)	68	60 to 70
2	Softening point, °C	IS :1205 -1978 (RA-2009)	48	Min. 45
3	Ductility at 27°C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, °C	IS :1209 -1978 (RA-2009)	290	Min. 220

*Information furnished by the Customer/Representative

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Job No: CTCE/BBMP/LLR/W.No.04/SDBC/AIV/2016-17

09.06.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
Name of the Work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore
Reference	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	09.06.2016



Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	386	21.60
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	85	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	304	
4	Aggregate Impact value = percent fines $100 \times (W_2/W_1)\%$	21.96	21.24	



Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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: 09.06.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	: Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval
Name of Work	: Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 09.06.2016

Result : Flakiness Index = 12.56%

Elongation Index = 13.75%

Result : Combined Flakiness & Elongation index 26.31%

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/LLR/W.No.04/SDBC/Stripping/2016-17

10.06.2016

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval
Name of the work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	10.06.2016

Type of binder : 60/70
 Percentage of binder used : 5.0% by wt.
 Total weight of aggregate : 200 g
 Total weight of binder : 10.0 g
 Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.4	3.30	96.70
2	3.3		
3	3.2		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%.

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Job No.: CTCE/BBMP/LLR/W.No.04/SDBC/Sp_Wa/2016-17

10.06 2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
Name of the Work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	10.06.2016



Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2025	2027	2026	
2	Weight of basket suspended in water	W_2 g	755	2020	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_3$ g	1270	1272	1271	
4	Weight of saturated surface dry aggregate in air	W_3 g	2014	2012	2010	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_4)$ g	744	740	739	
6	Weight of oven dried aggregate	W_4 g	1995	1994	1996	
7	Specific Gravity	$W_4 / (W_3 - W_4)$	2.681	2.695	2.701	2.692
8	Apparent Specific gravity	$W_4 / (W_4 - W_5)$	2.752	2.762	2.753	2.756
9	Water Absorption	$((W_3 - W_4) * 100) / W_4$	0.95%	0.90%	0.70%	0.85%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete

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Job No.: CTCE/BBMP/LLR/W.No.04/SDBC/AGG/2016-17

10.06.2016

Aggregate Gradation Test

IS : 2386 Part I

Customer	Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	Mr. L Lokanatha Reddy, No. 5, 1st H Main Road, 7th B Cross road Kaveri nagara B Block , Kaval Byrasandra, Bangalore.
Name of the Work	Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	10.06.2016

Total Weight of Sample:

5150 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	315	6.1	6.12	93.88	90-100	
4.75	2655	51.6	57.67	42.33	35-51	
2.36	725	14.1	71.75	28.25	24-39	
1.18	480	9.3	81.07	18.93	15-30	
0.3	325	6.3	87.38	12.62	9-19	
0.075	340	6.6	93.98	6.02	3-8	

Total Weight of Sample:

5200 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	395	7.6	7.60	92.40	90-100	
4.75	2545	48.9	56.54	43.46	35-51	
2.36	870	16.7	73.27	26.73	24-39	
1.18	515	9.9	83.17	16.83	15-30	
0.3	260	5.0	88.17	11.83	9-19	
0.075	275	5.3	93.46	6.54	3-8	

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Job No. CTCE/BBMP/LLR/W.No.04/SDBC/Stability/2016-17

10.06.2016

TEST REPORT ON STABILITY OF MIX

Customer	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
Agency	: Mr. L. Lokanatha Reddy, No. 5, 1 st H Main Road, 7 th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
Name of the Work	: Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
Source of location	: Hot mix Plant, Bangalore
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 10.06.2016

The results of the tests conducted on the semi dense bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-16)
1	Marshal Stability, Kn	8.40	8.60	8.2 Kn (min)
2	Marshal flow, mm	3.55	3.75	2 - 4
3	Percent air voids in Mineral Aggregate	3.20	3.55	3 - 5
4	Voids in Compacted Mix	13.85	14.30	13 - 15
5	Percent Voids filled with Bitumen	65.25	66.45	65 - 78
6	Density, g/cc	2.28	2.27	--

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Job No: CTCE/BBMP/LLR/W.No.04/CSR-05/045c/CEMENT/2016-17

Date: 23.05.2016

TEST REPORT ON CEMENT

* CUSTOMER	: Asst. Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
* AGENCY	: Mr. L Lokanatha Reddy, No. 5, 1 st H Main Road, 7 th B Cross road Kaveri nagara B Block, Kaval Byrasandra, Bangalore.
* NAME OF THE WORK	: Improvements of Roads and Drains in B sector in Ward No. 04, BBMP, Bangalore.
* REFERENCE	: BBMP/AEE/YNSD/71/2016-17 Dated : 21.05.2016
SAMPLE ID	: Cement
SAMPLE RECEIVED ON	: 21.05.2016
PERIOD OF TESTING	: 21.05.2016 to 23.05.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	29.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	175 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	460 Minutes	Not More than 600 Minutes
3	Soundness by Le Chatelier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

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